Southern Pacific 1141.

Lima Locomotive Works
Incorporated

LIMA, OHIO, U. S. A.

Locomotive Tender

Southern Pacific

CARD INDEX

Class 22000 Gal. 12 Wheel.
6275 Gal. Oil

Dept. Engineering
12-29-36

ORDER No.	SHOP NUMBERS	DATE	DRAUGHTSMAN
C.O. 1141	7721-7734	1937	
		19	
		19	
		19	
		19	

FORM LED 32

1141. S.P.

FORM ED-133 2M 12-23 FTP

2 Copies-Percy
3 " -Corresp.File
1 Copy -F.W.George
1 " -Material Book
1 " -Bascombe
1 " -Record

LIMA LOCOMOTIVE WORKS, INCORPORATED

ENGINEERING DEPARTMENT

CHANGES TO BE CONSIDERED IN BUILDING DUPLICATE ENGINES

MEMORANDUM NO. 1 MADE BY A.J.T. DATE December 9, 1937

ROAD Southern Pacific CLASS 4-8-4 ORDER 1135-1141-2002

NOTES MADE ON ENGINES NOS. 1135-2002 ATTACH TO SPECIFICATION NO. 1135-1141-2002

NOTE—DO NOT REPORT MORE THAN ONE ORDER ON THIS SHEET

Referring to body brake on Southern Pacific tenders, on instructions of Mr. Russell we welded the connecting links "E" to fulcrum, which is bolted to tender frame, on Order 1141.

On orders 1135 and 2002 these connecting links were loose.

For future orders the American Steel Foundries recommends a one-piece cast steel fulcrum bracket with extensions to take the place of the swivel links. This arrangement was submitted to Mr. Russell (file 11484) but he has not indicated whether it is satisfactory.

On duplicate orders bring up this question and find out what the Railroad wants to do.

A. J. Townsend

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Clearances—See 98.
Coal Pusher—See 88.
Coupler—See 86.
35 Die Work—Flanging Dies.
Drawgear, Tender—See 86.
Fire Extinguisher—See 64.
49 Gauges, Templates and Jigs.
53 Handrail and Steps—Handles.
54 Headlights and Signal Attachments, Lamps, Electric Wiring, Builders' License and Number Plates.
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84 Tender Brake—Truck and Frame Brake.
85 Tender Frames—Front and Back Bumpers.
86 Tender Drawgear—Buffer, Chafing Plate, Coupler and Rigging, Drawhead F. and B.
87 Tender Deck, Tool Box, Water Cooler.
88 Tender Tank—Water and Oil, Coal Gate, Coal Pusher, Filling Hole and Tank Funnel.
89 Tender Truck, Bolster and Guides, Spring Seats and Plank.
90 Tender Water Scoop—Arrangements and Details.
Tires—See 95.
Tool Boxes—See 87.
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97 Preliminary Designs and Propositions.
98 Clearances and Wheel Base Diagrams.
99 Miscellaneous.

ADDITIONS AND CHANGES

ADDITIONS TO BE MADE IN BLACK INK AND CHANGES IN RED INK

Date	ITEMS	Check	Date	ITEMS	Check
12-29-36	6-1	D ✓			
1-6-37	5-9	" ✓			
1-6-37	8-45.46,	" ✓			
1-29-37	2-Hold-34,35.36.37	" ✓			
2-2-37	4-12	" ✓			
2-11-37	4-47	" ✓			
2-22-37	4-11	" ✓			
2-22-37	5-1.5.56-6-7-8	" ✓			
2-22-37	4-11	" ✓			
2-24-37	5-1,2,5.6.7.8.56	" ✓			
2-24-37	5-12,13,	" ✓			
3-12-37	3-35	" ✓			
3-12-37	12-1-3-6-32-7	" ✓			
3-29-37	4-11-Hold	" ✓			
4-1-37	4-11 Release as Changed	" ✓			
4-9-37	4-31.32.33,6.7.19.20	" ✓			
4-10-37	4-10	" ✓			
4-19-37	4-31 Hold all Mark ~~on~~ ~~*~~	" ✓			
4-28-37	4-22.23.54.55.56	" ✓			
4-28-37	5-18.19.20.26.27.28.29.30.32.33 24.51.55	" ✓			
4-28-37	4-57.58	" ✓			
4-28-37	8-25	" ✓			
4-28-37	10-1.23	" ✓			
5-27-37	4-31.32.33. Release to New Cd	" ✓			
6-7-37	8-11.19.	"			
6-8-37	8-9 to 23 Inc	"			
6-8-37	12-34	"			
6-8-37	3-36	"			
6-8-37	5-9	"			
9-2-37	4-59-60,61,51,	"			
9-3-37	11-61	"			

1141

LED 32-2

Check	Item	TITLE		No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 11—AXLES									
D	1	Axle		6	112-A-194	ORD.	—	—	—	—	—
	2	"									
D.	3	" Marking			112-A-280	—	—	—	—	—	—
	4										
	5										
	6										
	7										
	8										
	9										
	10										
	11										
	12										
	13	**GROUP 15—BOLTS AND NUTS**									
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										
	25	**GROUP 17—BOXES, TRUCK**		8	BUCKEYE ST. CSTGS. CO. D-5173-E	ORD					
D.	26	Box		8	BUCKEYE ST. CSTGS. CO. D-5173-E	ORD					
D.	27	" Lid & Pin		12	BUCKEYE ST. CSTGS. CO. C-5202	ORD.	—	—	—	—	—
	28	" " Pin		—							
	29	" " Spring		—							
D	30	" Journal Brass	7"x14"	12	172 A191	SP. BL-14680 MAGNUS. ORD	—	—	—	—	—
D.	31	" " Wedge	7"x14"	12	172 B-133 A.A.R. DROP FORGED. ORD.		—	—	—	—	—
D.	32	" Dust Guard	7"x14"	12	THORNBURGH MFG. CO.		—	—	—	—	—
D.	33	" " " WEDGES		12	WOOD TO SUIT SHOP		—	—	—	—	—
D.	34	" LID KEEPER ARRGT.			172-A-188						
D.	35	" " " LATCH		12	"	—	17-A-20	—	—	—	—
D.	36	" " " " BRKT.		12	"	—	17-A-21	—	—	—	—
D.	37	" " " SPRING		12	"	5 COILS 3/4" O.D. 1 3/8" FREE HEIGHT #14 B.W.G. STEEL WIRE		—			
	38										
	39										
	40										
	41	Held up #37									
	42										
	43										
	44										
	45	**GROUP 35—DIE WORK**									
	46										
	47										
	48										
	49										
	50										
	51										
	52										
	53										
	54										
	55										
	56										
	57										
	58										
	59										
	60										
	61										

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 49—GAUGES, TEMPLATES & JIGS								
	1									
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									
	18									
	19									
	20									
	21	**GROUP 53—HANDRAIL AND STEPS**								
	22	Handrail	—							
	23	"	—							
	24	" Column	—							
	25	" "	—							
	26	" "	—							
	27	" Ball	—							
	28	" Flange	—							
	29	" "	—							
	30									
D.	31	Bumper Handle	2	863-A-93	—	53-B-2	—	—	—	—
	32	" "	—							
D.	33	Tank " FRONT	2	532-B-785	—	532-B-785	—	—	—	—
D	34	" " REAR R L	1 1	532-A-785	—	532-A-785	—	—	—	—
D.	35	" " ACROSS REAR	1	880-~~A~~B-37	—	53-F-208	—	—	—	—
D.	36	" " OIL TANK	4	888-~~A~~B-27	—	53-E-2	—	—	—	—
	37									
	38									
	39									
	40									
	41									
	42									
D.	43	Steps—Front COMPLETE R L	1 1	532-B-780	—	532-B-780	—	—	—	—
	44	Front Step Hanger	—							
	45	" " Brace	—							
D.	46	Steps—Back COMPLETE R L	1 1	532-A-786	—	532-A-786	—	—	—	—
	47	Back Step Hanger	—							
	48	" " Brace	—							
	49	Tank Step	—							
	50	" "	—							
D.	51	Tank Ladder—Outside	1	532-A-784	—	532-A-784	—	—	—	—
D.	52	" " —Inside	1	532-A-780		532-A-780	—	—	—	—
D.	53	STEP (OIL TANK SAND BOX)	1	532-A-261	—	—	53-451 ✓	—	—	—
	54									
	55									
	56									
	57									
	58									
	59									
	60									
	61									

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 54—HEADLIGHTS AND SIGNAL ATTACHMENTS								
	1	Signal Fixtures—Location								
	2	Flag Socket								
	3	Marker Bracket								
D.	4	Lamp Bracket R L	1, 1	542-A-664	—	—	—	—	54-708 ✓	—
D.	5	" ~~Hook~~ LINER	2	" B	3/16" x 4 1/2" x 4 1/2" PLATE	—	—	—	54-709 ✓	—
D. ✓	6	~~Pail Hook~~ ELECTRIC WIRING DIAGRAM		543-~~A~~ B-117						
D. ✓	7	~~Headlight Bracket~~ RECEPTACLE LINER	2	" "	4 1/8" DIA. 3/16" PLATE	—	—	—	—	—
	8	" Shelf								
D.	9	LANTERN HOOK	1	542-B-13	—	—	—	—	54-43 ✓	—
P.	10	~~License Plate~~ Electrical Material	1 Set	54-MO-157-B	—	—	—	—	—	—
P ✓	11	Ownership Plate	2	544 ~~C-37~~ A-38	Series "O" Locate to Suit Inspector	—	—	—	54-~~724~~ 742 B	—
P	12	~~Patent~~ Classification & No. Plate	2	542A665	Class 220 R-1 Nos. 9018-9031	—	54-710 ✓	—	—	—
D.	13	LANTERN HOOK LINER	1	542-B-13	3/16" x 2 1/2" x 3 1/2" WELDED TO TANK	—	—	—	—	—
D.	14	MARKER LAMP BOX	1	542-A-666	1/8" PLATE, ORD.	—	—	—	—	—
D.	15	" " BRACKETS	2	"	1/8" " WELDED TO BOX	—	—	—	—	—
D.	16	BACK UP LAMP "	2	542-D-503	WITH STUDS & LOCK WASHERS AS SHOWN	—	—	—	—	—
D.	17	ELECTRICAL MATERIAL	1-SET	FURNISHED	BY R.R. Co.	—	—	—	—	—
D.	18	" "	1-SET	54-MD-151-~~H~~ J	—	—	—	—	—	—
D. ✓	19	CONDUIT CLAMP	6	543-~~A~~ B-117	—	63-T-63	—	—	—	—
D. ✓	20	" "	4	" "	—	54-M-34	—	—	—	—
	21	GROUP 57—LAGGING AND JACKET								
D.	22	Steam Pipe Lagging	1-SET	850-~~A~~ C-16	"WOVENSTONE" ORD.	—	—	—	—	—
D.	23	" " " 2" OIL LINE	1-SET	" "	"	ORD. -	—	—	—	—
	24	" " Jacket								
	25									
D.	26	GROUP 54. HDLTS. & SIG. FIXTURES								
D.	27	RECEPTACLE BOX	1	542-A-684	—	—	—	—	54-729 ✓	—
D.	28	" "	1	542-B-684	—	—	—	—	54-729 ✓	—
D.	29	" " BRACKET	1	542-A-686	FRONT	542-A-686	—	—	—	—
D. ✓	30	" " "	1	542-B-686	REAR	542-B-686	—	—	—	—
P D. ✓	31	PNEUMATIC BRAKE WIRING DIAGRAM		543-~~A~~ ~~XX~~ A-124	MATL. ORD.	—	—	—	—	—
P D. ✓	32	" " CONDUIT CLAMPS	~~#5~~	" A-124	—	63-T-63	—	—	—	—
P D. ✓	33	~~GROUP 59—OIL AND GREASE CUPS~~ " " CLAMPS	4	" A-124	—	54-M-34	—	—	—	—
	34	~~Truck Oil Cup~~ " " Support	1	"	—	63 A363	—	—	—	—
	35	" " " Cap								
	36									
	37	Stoker Oil Cup								
D.	38	GROUP 63 Pipe Fittings & Clamps								
D	39	PIPE CLAMPS	5	644-A-63	—	63-5-63	—	—	—	—
D.	40	" "	3	"	—	63-D-63	—	—	—	—
D.	41	" " U-BOLT	1	"	—	63-E-233	—	—	—	—
D.	42	" SUPPORT	1	"	—	63-J-329	—	—	—	—
D.	43	" "	1	"	—	63-K-329	—	—	—	—
D.	44	" "	1	"	—	63-L-329	—	—	—	—
D.	45	" CLAMP	1	"	—	63-M-285	—	—	—	—
D.	46	" SUPPORT	3	"	2" x 2" x 1/4" ANGLES 4" LONG		—	—	—	—
D.	47	" "	1	"	~~2 1/2 x 2 1/2 x 3/8 Ang~~ ~~63-A-350~~		—	—	—	—
D.	48	HEATER PIPE TAGS	2	"	TO SUIT SHOP	—	—	—	—	—
	49	~~GROUP 61—PA'TING, LET'RING & NUM'G~~								
	50	~~Tender Lettering~~								
D	51	PIPE CLAMP	1	850-C-16	—	63-M-63	—	—	—	—
	52									
D.	53	GROUP 63 PIPE FITTINGS & CLAMPS								
D.	54	PIPE SUPPORT	1	850-~~A~~ C-16	WELDED TO FRAME	63-A-354	—	—	—	—
D.	55	" CLAMP	1	850-~~A~~ S-16	—	63-H-63	—	—	—	—
D.	56	" "	1	"	—	63-A-353	—	—	—	—
D	57	" Support	2	632 A 1221	~~Reducing Valve~~	632 A221	—	—	—	—
D	58	" Clamp	2	542 N-124	Retaining Valve	542 N-124	—	—	—	—
D	59	" "	1	644-A-63	—	63-A-334	—	—	—	—
D	60	" SUPPORT	1	"	—	63-A-362	—	—	—	—
D	61	" "	1	850-C-16	—	63-D-321				

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		63-PIPE FITTINGS & CLAMPS								
D.		GROUP ~~62~~ ~~PILOT AND SNOW PLOW~~								
D.	1	~~Pilot~~ TANK LEVEL INDICATOR PIPING ARRGT.		643-A-XXX 643A128	ASHCROFT. BULLETIN #175	—	—	—	—	—
D.	2	~~"Band"~~ " " " PIPE FITTING	1	822-A-164 H	—	—	—	—	STICK	—
D.	3	~~"Brace"~~ " " " HOSE NUT	1	822-F-164	—	—	—	—	STICK	—
D.	4	~~"~~ " " " " SLEEVE	1	822-E-164	—	—	—	—	STICK	—
D.	5	~~"Bottom Plate"~~ " PIPE CLAMP	~~1~~ 1	643-XX-XXX 643A128	—	63 M-63 63-XX-63	—	—	—	—
D.	6	~~"Bracket"~~ " " " " "	~~#4~~	643-A-128	—	63 B-321 63-A-347	—	—	—	—
D.	7	~~"Corner Iron"~~ " " " SUPPORT	~~#3~~	"	—	63 C-321 63-H-329	—	—	—	—
D.	8	~~"Knee"~~ " " " ~~"CLAMP FILLER~~ Angles 4	~~#2~~	"	1" 2"x2"x1/4"x2" Long Welded to Tank 1/4x2x3/2" WELDED TO TANK	—	—	—	—	—
D.	9	PIPE COUPLING	1	888-A-127 B 27	CRANE EX. HVY. 1" RECESSED COUPLING, ORD.	—	—	—	—	—
D.	10	" BUSHING (OIL TANK)	1	632-A-1119	—	—	—	—	STICK	—
D.	11	" " (" ")	2	632-B-1119	—	—	—	—	STICK	—
	12	Water Level Indicator Pipe Support	1	643 A 128	—	63-H-329				
	13	~~"Snow Plow"~~ " " Clamp	3	"	—	54-N-34	—	—	—	—
D.	14	SAFETY CHAIN, (BARCO JOINT)	1	643-A-113	—	63-A-346	—	—	—	—
D.	15	CONDUIT COUPLER CHAIN	1	"	—	63-A-348	—	—	—	—
D.	16	PIPE CLAMP (TRAIN LINE)	1	"	—	63-A-347	—	—	—	—
D.	17	" " (AIR SIGNAL)	1	"	—	63-B-347	—	—	—	—
D.	18	" " (AIR)	4	850-C-16	—	63-A-351	—	—	—	—
D.	19	" " (")	3	"	—	63-A-352	—	—	—	—
D.	20	" " (STEAM HEAT)	7	"	—	63-B-290	—	—	—	—
	21	GROUP 63—PIPE FITTINGS AND CLAMPS								
D.	22	Box Cooler Hose	4	822-A-201	1/2" GARDEN HOSE ORD.		—	—	—	—
	23	" " Fitting	—							
	24	" " " Nut	—							
	25	" " " Swivel	—							
D.	26	PIPE CLAMP (ST. HEAT)	1	850-C-16	J BOLT	63-C-33	—	—	—	—
D.	27	" " (AIR)	~~#1~~	"	—	~~63-A-3XX~~	—	—	—	—
D.	28	Pipe Clamp (U-BOLT)	2	"	—	63-R-33	—	—	—	—
D.	29	" " (" ")	2	"	—	63-B-233	—	—	—	—
D.	30	" "	1	"	—	63-E-63	—	—	—	—
	31	" "								
D.	32	" Hanger	3	"	—	63-F-220	—	—	—	—
D.	33	" "	1	"	—	63-S-220	—	—	—	—
D.	34	" "	1	"	—	63-T-220	—	—	—	—
	35	" "								
	36	" Manifold Air Brake								
D.	37	" " SUPPORT	2	632-A-1122	—	632-A-1122	—	—	—	—
	38	" " Support								
D.	39	" ELBOW (OIL HEATER)	1	632-A-1101	3/4" PIPE TAP	—	63-1299	—	—	—
D.	40	" " (ST. HEAT & OIL LINE)	2	632-B-1101	2" PIPE TAP	—	63-1299	—	—	—
	41	Water Joint Support								
D.	42	OIL TANK HEATER CLIPS	4	883-A-72	1/4" PLATE "CLIPX"	—	—	—	—	—
D.	43	" " " "	2	"	" " " " Y "	—	—	—	—	—
D.	44	STEAM HEAT ELBOW, REAR	1	632-A-1102	—	—	63-1300	—	—	—
D.	45	" " " & PIPE CLAMP	1	632-A-1117	—	632-A-1117	—	—	—	—
	46									
	47									
	48									
	49									
	50	GROUP 64—PIPING ARRANGEMENTS								
D.	51	Piping Arrangement		850-C-16	PIPE ORD.	—	—	—	—	—
D	52	OIL HEATER PIPING		644-A-63	VALVES & FITTINGS ORD.	—	—	—	—	—
	53	Sprinkler Piping								
D.	54	STEAM & AIR CONNECTIONS, REAR		643-A-113	FUR. BY R.R. CO.	—	—	—	—	—
D.	55	Steam Heat Piping		850-C-16						
D.	56	PIPING ARRGT. (TANK LEVEL INDICATOR)		~~643-A-XXX~~ 643A128	ASHCROFT. BULLETIN #175	—	—	—	—	—
	57	Coal Pusher Piping								
D.	58	STEAM HEAT EQUIPMENT	1-SET		FUR. BY R.R. CO.	—	—	—	—	—
D.	59	OIL TANK HEATER	1	883-A-72	1/4" PLATE ORD. ELBOWS & RETURN BENDS, ORD	—	—	—	—	—
D	60	" " " (CLAMP BOLTS)	2	"	— 88-A-207	—	—	—	—	—
	61	" " " Steam Trap	1	644 A 63	Vapor Co. Htg Co. #115 Print 3a010 K Ord	—	—	—	—	—
D.		SEE PAGE 4								

1141

LED 32-6

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 66—PLUGS, HANDHOLES AND WASHOUTS								
D.	1	WASHOUT PLUG	2	662-A-58	—	—	—	—	66-202	
	2								~~62-202~~	—
	3									
	4									
	5									
	6									
	7									
	8									
	9	**GROUP 71—RUN'G BOARDS & BRACK'TS**								
	10	Running Board								
	11	" "								
	12	" " Bracket								
	13	" " "								
	14	" " "								
	15	" " "								
	16									
	17									
	18									
	19									
	20									
	21	**GROUP 73—SAND BOX AND RIGGING**								
D.	22	Sand Box	1	733-A-105	¼" PLATE. ORD.	—	—	—	—	—
D.	23	" " ~~Brace~~ HINGES	2	"	8" EX. HVY. STRAP. ORD.	—	—	—	—	—
D.	24	" " ~~Handle~~ LANTERN HOOKS	2	"	SPRING STEEL ORD. ON P.D.	—	—	—	—	—
	25									
	26									
	27									
	28									
	29	**GROUP 76—SPRINGS**								
D.	30	Truck Spring	32	762-A-256						
D.	31	" " (SNUBBER)	8	CARDWELL WESTINGHOUSE TYPE A. ORD		—	—	—	—	—
D.	32	" " ~~Clip~~ MARKING		762-A-148	—	—	—	—	—	—
	33	" " End Block	—							
	34	Buffer Spring	—							
	35	Coupler Spring	—							
	36	Draw Spring	—							
	37	" "	—							
	38	Water Scoop Spring	—							
	39	" " "	—							
	40	Brake Beam Leveling Spring	—							
	41									
	42									
	43									
	44									
	45									
	46	**GROUP 80—STOKER AND DETAILS**								
	47									
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(Group 80 Continued)

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 80—STOKER AND DETAILS (Cont.)								
	1									
	2									
	3									
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	6									
	7									
	8									
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	44	**GROUP 82—TANK VALVES AND COCKS**								
D.	45	Tank Valve	2	823-A-53	5" CRANE #461 ORD.-	—	—	—	—	—
	46	" " Body	–							
	47	" " Seat	–							
	48	" " Shaft	–							
	49	" "	–							
	50	" " Rod	–							
	51	" " Lift	–							
	52	" " Handle	–							
	53	" " Gland	–							
	54	" " Goose Neck	–							
	55	" " Nut	–							
	56	" " Sleeve	–							
D.	57	" " Hose Nut	2	552-A-411	—	—	—	—	55-474	—
D.	58	" " " Swivel	2	552-A-408	—	—	—	—	55-473	—
D	59	Tank Valve Flange	2	822-A-199	—	—	—	—	82-509	—
	60	" " "								
	61	" " Strainer								

(Group 82 Continued)

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 82—TANK VAL. AND COCKS (Cont.)								
	1	Tank Well	—							
	2	" " Plug	—							
D.	3	" ~~Syphon~~ HOSE	2	FUR. BY R.R. CO.	—	—	—	—	—	—
D.	4	" " ~~Pipe Support~~ CLAMPS	4	" " "	" —	—	—	—	—	—
	5	" " Brace	—							
D.	6	OIL TANK MEASURING ROD STAND PIPE	1	822-A-197	2½" STD. PIPE & COLLAR	—	—	—	—	—
D	7	" " " " THIMBLE	1	"	—	—	82-507 ✓	—	—	—
D	8	" " CAPACITY CHART	1	822-A-203	—	—	—	—	—	—
D	9	Oil Tank ~~Plug~~ VALVE STIRRUP	1	823-C-13	—	82-B-32	—	—	—	—
D.	10	" " Valve	1	"	—		—	—	—	—
D.	11	" " " Seat	1	"	Turned from Stock. Steel Welded in Tank.		—	—	82-346 ✓	—
D	12	" " " Rod OIL FEED	1	"	5/8" DIA. 78½" LONG	—	—	—	~~82-353~~	—
D	13	" " " ~~Arm~~ " DRAIN	1	"	5/8" DIA. 81⅛" LONG	—	—	—	—	—
D	14	" " " ~~Gland~~ " STIRRUP	1	"	—	82-A-32	—	—	—	—
D	15	" " " HANDLES	2	"	—	82-A-33	—	—	—	—
D	16	" " " Nut	2	"	—	—	—	—	—	—
D	17	" " " ~~Sleeve~~ SPRING	2	"	¼" DIA. SPRING STEEL. ORD.		—	—	82-349 ✓	—
D	18	" " " Drain	1	"	—		—	—	—	—
D	19	" " " " Seat	1	"	Turned from Stock. Steel Welded in Tank		—	—	82-350 ✓	—
D	20	" " " Stuffing Box	2	"	To Fit Valve Rod	—	—	—	~~82-358~~	
D	21	" " " " " Nut	2	"	" " " "	—	—	—	82-348 ✓	—
D	22	" " " " " ~~Gland~~ FOLLOWER	2	"	" " " "	—	—	—	82-347 ✓	—
D	23	" " " Rod End	2	"	—	—	—	—	STICK	—
D	24	" " Measuring Rod	1	823-A-52	1"×1"×⅛" ANGLE. ORD.	823-A-52	—	—	—	—
D	25	Oil Tank Cock DRAIN.	1	850-C-16	1¼" W.A.B. ORD.	—	—	—	—	—
	26	" " " Cap	—							
	27	" " " Plug	—							
	28	" " " Nut	—							
	29	" " " Washer	—							
	30	" " " Handle	—							
	31	Tank Cock								
	32	" " Plug								
	33	" " Nut								
	34	" " Washer								
	35	" " Handle								
	36	" " Flange	—							
	37	" " Rod	—							
	38	" " Stuffing Box	—							
	39	" " " " Gland	—							
	40	" " " " Nut	—							
D.	41	Box Cooler ~~Valve~~ ARRANGEMENT		822-A-201	—	#250	—	—	—	—
D	42	" " ~~Cap~~ VALVE	12	"	⅜" CRANE # ~~270~~ ORD.	—	—	—	—	—
D	43	" " ~~Stem~~ " PIPE NIPPLES	12	"	⅜" EX. HVY. PIPE STYLE I.	—	—	—	—	—
D	44	" " ~~Gland~~ " " "	24	"	⅜" " " " " 2.	—	—	—	—	—
D	45	" " ~~Nut~~ CARRIER ARRGT.		~~822-A-208~~	L.S. ONLY	—	—	—	—	—
D	46	" " ~~Handle~~ " BRK'TS.	8	"	—	~~822-A-208~~	—	—	—	—
	47	" " " Coupling Nut	—							
	48	" " " Swivel	—							
	49									
	50	**GROUP 84—TENDER BRAKE**								
D	51	Frame Body Brake Arrangement & DETAILS		A.S.F. PRINT No. 81931	AM. STEEL FDRYS. ORD.	—	—	—	—	—
	52	Body Brake Lever	—							
D	53	" " " SUPPORT	2	842-A-128	—	842-A-128	—	—	—	—
D	54	" " " Support	2	842-B-128	—	842-B-128	—	—	—	—
D.	55	" " " "	4	842-C-128	—	842-C-128	—	—	—	—
	56	" " Connecting Rod	—							
	57	" " " "	—							
	58	" " Equalizer	—							
	59	" " Fulcrum	—							
	60	" " Rod	—							
	61	" " Clevis	—							

(Group 84 Continued)

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 84—TENDER BRAKE (Cont.)								
D	1	Body Brake Sheave	1	842-B-87	—	—	84-64 ✓	—	—	—
D	2	" " " Support	1	843-C-37	—	843-C-37	—	—	—	—
D	3	HAND " Shaft BEARING BRK'T.	1	843-E-37	½" PLATE ORD.	843-E-37	—	—	—	—
D	4	" " " ~~Cap~~ CHAIN. COMPLETE	1	843-B-37	CHAIN. ORD.	843-B-37	—	—	—	—
D	5	" " " ~~Hanger~~ BRG. BRACE	1	843-D-37	½" PLATE ORD.	843-D-37	—	—	—	—
D	6	" " " ~~Step~~ BRACKET	1	842-A-127	—	—	—	84-63 ✓	—	—
	7	" " " Wheel								
D	8	" " " Handle & RATCHET COMPLETE.	1-SET	843-A-36	W.H.MINER PT. 12073B ORD.		—	—	—	—
	9	" " " Pawl	—							
	10	" " " " Plate	—							
	11	" " " Ratchet	—							
	12	" " " Weight	—							
D	13	" " Cylinder	2	A.S.F. PRINT 81931	16"x12" W.A.B.-UAFHS. ORD.		—	—	—	—
	14	" " " " Head	—							
	15	" " " "	—							
	16	" " " Support	—							
D	17	" " Pins	1-SET	AM. STL. FDRYS. ORD.	—	—	—	—	—	—
	18	" " "	—							
	19	" " "	—							
	20	" " "	—							
	21	Tender Brake Piston	—							
	22	" " " Follower	—							
	23	" " " Ring	—							
	24	" " " Rod	—							
	25	Brake Reservoir Hanger	—							
	26	" " Strap	—							
D	27	Hand Brake Arrangement		843-A-36						
D	28	" " Rod	1	843-A-37						
D	29	" " SHEAVE BOLT.	1	842-N-41	—	—	—	—	—	—
	30									
	31									
	32									
	33									
	34									
D	35	Truck Brake ARRG'T. & DETAILS.		A.S.F. PRINT 81929	ORD.	—	—	—	—	—
D	36	" " Beam SAFETY CHAINS.	4	842-C-122	—	842-C-122	—	—	—	—
D	37	" " " " "	4	842-D-122	—	842-D-122	—	—	—	—
D	38	" " " " HANGERS.	8	842-A-121	—	842-A-121	—	—	—	—
	39	" " " Support	—							
	40	" " " Safety Chain	—							
	41	" " " " Bar	—							
	42	" " " Leveling Eyebolt	—							
	43	" " Head	—							
D	44	" " Shoe	24	A.B.S. S.P. PRINT BF 31668A ORD.			—	—	—	—
D	45	" " " Key	24	A.A.R. STANDARD ORD.			—	—	—	—
	46	" "	—							
	47	" " Lever	—							
	48	" " " Guide	—							
	49	" " Dead Lever	—							
	50	" " " " Anchor	—							
	51	" " " " " Lug	—							
	52	" " Lever Rod	—							
	53	" " " "	—							
D	54	" " Pins	1-SET	A.S. FOUNDRY'S ORD.			—	—	—	—
	55	" " "	—							
	56	" " "	—							
	57									
	58									
	59									
	60									
	61									

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 85—TENDER FRAME								
D	1	Frame	1	850-~~A~~C-16	GEN. STL. CSTGS. CO. 51276-F ORD.		—	—	—	
	2	" Center Sill	—							
	3	" Side Sill	—							
	4	" End Sill	—							
	5	" Corner Angle	—							
	6	" " Bracket	—							
	7	" " Knee	—							
	8	" Brace	—							
	9	" "	—							
	10	" "	—							
	11	" Filling	—							
	12	" "	—							
	13	"	—							
	14	" Bolster	—							
	15	" " Angle	—							
	16	" " Plate	—							
	17	" " Truss Bar	—							
	18	" " " Brace	—							
	19	" " " Plate	—							
	20	" "	—							
	21	" " Tie Plate	—							
D	22	" Center Plate	2	852-A-83	ORD. -		—	—	—	—
D	23	" Side Bearing WEARING PLATES	4	850-~~A~~C-16	½"×4½"×15" HARDENED STEEL WELDED TO FRAME		—	—	—	—
	24	" " "	—							
	25	Push Pole	—							
	26	" " Collars	—							
	27	" " Pocket	—							
	28	" " Support	—							
	29	" " Stop	—							
	30	Wrecking Frog Brackets	—							
	31	Switch Rope Hooks	—							
	32	Check Chain	—							
	33	" " Pocket	—							
	34	" " Hook	—							
	35	Tender Floor	—							
	36	" " Edge	—							
	37	Bumper—Front	—							
	38	" —Back	—							
	39	Tender Floor Anchor	—							
	40									
	41									
	42									
	43									
	44									
	45									
	46									
D	47	**GROUP 86—TENDER DRAWGEAR**	1	863-A-93	MINER A-5-XB PT.# 15757A. ORD. -		—	—	—	
D	48	Coupler	1	"	AM. STL. FDRY'S. 07261 D. ORD. -		—	—	—	
D	49	" ~~Pocket~~ KEY RETAINER	1	"	— 86-A-134		—	—	—	
D	50	" Followers	1	"	2¼"×8¾"×12½"					
D	51	" Yoke	1	"	MINER. PT.# 9312-A. PATT. 6439 ORD.		—	—	—	
D	52	" CHAIN ~~Filler~~ PINS	2	372-C-356	—		—	—	—	
	53	" Follower Guide	—							
D	54	" Carry ~~Iron~~ WEARING PLATE	1	863-A-93	HARDENED STEEL 86-A-133		—	—	—	
D	55	" Chain . LINK	1	372-D-356	—	372-D-356	—	—	—	
D	56	" " Clevis	2	372-B-356	—	372-B-356	—	—	—	
D	57	Drawbar Pin	1	862-A-114	MATL. ORD.	862-A-114	—	—	—	
D	58	" " SUPPORT	1	862-E-38	½" PLATE	862-E-38	—	—	—	
D	59	~~Safety Chain Pin~~ KEY	1	862-A-115	—	862-A-115	—	—	—	
D	60	Draft Gear ~~Check Casting~~ KEY RETAINER	1	862-D-66	—	862-D-66	—	—	—	
D	61	" " Key	1	862-B-90		862-B-90	—	—	—	

(Group 86 Continued)

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 86—TENDER DRAWGEAR (Cont.)								
D	1	Draft Gear Carrier	1	863-A-93	3/4" x 14 1/2" x 24" PLATE ORD.	—	—	—	—	—
	2	Drawhead Brace	—							
D	3	Uncoupling Shaft	1	863-A-93	—	86-A-132	—	—	—	—
	4	" " Arm	—							
D	5	" " Bracket	3	862-C-44	—	—	86-90 ✓	—	—	—
	6	" " "	—							
	7	" " Handle	—							
	8	" " Cap	—							
	9									
	10	Draw Casting—Front	—							
	11	" " —Back	—							
	12	Safety Chain	—							
	13	" " Clevis	—							
	14	" " Staple	—							
	15	" " Washer	—							
	16									
D	17	Chafing Casting (RADIAL BUFFER)	1-SET		FRANKLIN RY. SUPPLY CO. ORD.					
	18	" Iron	—							
	19	Spring Buffer	—							
	20	" " Case	—							
D	21	DRAWBAR PIN OILER ARRGT.		643-A-112	—	—	—	—	—	—
D	22	" " " PLATE	1	"	1/2" x 8" x 8" PLATE	—	—	—	—	—
D	23	" " " PIPE THIMBLES	4	"	1/2" PIPE 1" LONG	—	—	—	—	—
D	24	" " " PIPE CLAMP	1	"	WITH WOOD FILLER	63-F-105	—	—	—	—
	25									
D	26	RADIAL BUFFER ADJUSTING BOLT	1	862-A-116	MILD STEEL	—	—	—	—	—
D	27	" " " WASHER	1	"	1/4" PLATE	—	—	—	—	—
D	28	" " ADJ. BOLT. BRKT.	1	862-A-117	—	—	—	86-117 ✓	—	—
	29									
	30									
	31									
	32									
	33									
	34	**GROUP 87—TENDER DECK AND TOOL BOX**								
D	35	Tender Deck COMPLETE	1	873-A-36	5/16" PLATE ORD.	—	—	—	—	—
	36	" " Shovel Plate	—							
	37	" " Support, Outside	—							
	38	" " " Inside	—							
	39									
	40									
D	41	Tool Box	1	873-A-37	1/4" PLATE ORD. R.S. ONLY	—	—	—	—	—
D	42	" " HINGES	3	"	8" EX. HVY. "T" ORD.	—	—	—	—	—
D	43	" " ~~Handle~~ LATCH	2	"	—	87-B-63	—	—	—	—
D	44	" " " "	2	"	—	87-A-66	—	—	—	—
D	45	" " ~~Brace~~ " GUIDE	2	"	—	87-A-64	—	—	—	—
D	46	" " " " "	2	"	—	87-A-65	—	—	—	—
D	47	" " BRACKET	1	"	—	87-A-69	—	—	—	—
D	48	" ~~Closet Hinge~~ "	1	"	—	87-A-70				
D	49	" DOOR ~~Lug~~ HOLDER	1	"	1/4" x 1 1/2" BAR STEEL	—	—	—	—	—
D	50	TOOL RACK	1	872-A-65	PLATE & PIPE. LOCATE TO SUIT R.R. INSPECTOR	—	—	—	—	—
D	51	" " WRENCH HOLDER	1	"	—	87-A-67	—	—	—	—
D	52	" " " "	1	"	—	87-A-68	—	—	—	—
D	53	Water Cooler	1	873-A-35	WOOD & GALV. IRON. ORD.		—	—	—	—
D	54	" " ~~Base~~ DRAIN FLANGE	1	"	—	—	—	—	87-5 ✓	—
D	55	" " ~~Top~~ ICE CONTAINER BASE	1	"	—	—	—	—	87-6 ✓	—
D	56	" " ~~Lid~~ HINGES	2	"	5" STRAP. ORD.	—	—	—	—	—
D	57	" " ~~Casing~~ HASP	1	"	4 1/2" ORD.	—	—	—	—	—
D	58	" " Cock	1	"	CRANE 1/4" PC. #700 ORD.	—	—	—	—	—
D	59	" " "	1	"	" 3/8" " 250 WITH W.A.B. HANDLE. PC. # 9035-6 ORD.					—
D	60	TOOL BOX LATCH BOLT	1	873-A-37	—	—	—	—	—	—
P	61	WATER COOLER BRKT.	1	880-B-37	—	87-A-77	—	—	—	—

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 88—TENDER TANK								
D ✓	1	Tank—Water	1	880-~~A~~B-37	22,000 GALLON	—	—	—	—	—
D	2	" Material Bill		88-M2-130						
D ✓	3	" ~~Brace~~ SIDE SHEET LUG	18	880-~~A~~B-37	—	88-A-208	—	—	—	—
	4	" Knee								
	5	" Lifter Iron								
D ✓	6	" Drain Pipe	2	880-~~A~~B-37	3" EX. HV.Y. PIPE	—	—	—	—	—
D ✓	7	" " " Flange	4	" "	3" " " CAST IRON. ORD.	—	—	—	—	—
	8	" " " "	—							
	9	" Fuel Rack	—							
	10	" Tool Hook	—							
D	11	" ~~Lug~~ HAND BRAKE SHAFT CASING	1	882-A-146	4½" EX. HV.Y. PIPE. ORD.	—	—	—	—	—
D	12	" OIL LINE CASING	2	882-B-146	" " " " "	—	—	—	—	—
D	13	" Funnel	4	883-A-71	3/16" PLATE. ORD. LATCH ON TWO REAR FUNNELS ONLY	—	—	—	—	—
D	14	" " Lid	4	"	3/16" "	—	—	—	—	—
D	15	" " Hinge	8	"	12" EX. HV.Y. STRAP. ORD.	—	—	—	—	—
D	16	" " ~~Lug~~ LATCH JAW	2	"	—	—	—	88-140 ✓	—	—
D	17	" " ~~Handle~~ LATCH	2	"	—	—	—	88-143 ✓	—	—
D	18	" " ~~Screen~~ " CATCH	2	"	WELD TO FUNNEL 88-B-205	—	—	—	—	—
	19	" Coal Gate	—							
	20	Coal Gate Angle	—							
	21	" " Catch	—							
	22	" " Latch	—							
	23	" " Hinge	—							
	24	" " " Lug	—							
	25	" " Chain	—							
	26	" " Eyebolt	—							
	27	" " Slide Clamp	—							
	28	" " Catch Bracket	—							
	29	" " Handle	—							
D	30	WATER SPOUT HOOK	1	SK. 88-A-191	—	88-A-191	—	—	—	—
	31	Tank Cut Out for Stoker	—							
D ✓	32	FIRE RAKE BRACKET	3	880-~~A~~B-37	——	88-B-194	——	——	——	——
	33									
D ✓	34	Tank—Oil	1	888-~~A~~B-27	6,275 GALLON	—	—	—	—	—
D	35	" Material Bill		88-MO-129	—	—	—	—	—	—
	36	" Brace	—							
D	37	" Lifter Iron	4	882-A-144	WELDED TO TANK	—	—	88-144 ✓	—	—
	38	" Lug	—							
	39	" "	—							
D	40	" Funnel	1	882-A-142	¼" PLATE. ORD.	—	—	—	—	—
D	41	" " Lid	1	"	3/8" " "	—	—	—	—	—
D	42	" " Hinge	2	"	WELD TO LID	—	—	—	—	—
D	43	" " " Lug	1	"	" TO FUNNEL	—	—	88-141 ✓	—	—
	44	" " Screw	—					88-142 ✓		
	45	" " Handle	—							
	46	" " Gasket	—							
D	47	" " Screen	1	882-A-143	#4 MESH .085" IRON WIRE ORD.	—	—	—	—	—
D	48	" " LATCH JAW	1	882-A-142	—	—	—	88-140 ✓	—	—
D	49	" " "	1	"	—	—	—	88-143 ✓	—	—
D	50	~~Coal Pusher~~ " CATCH	1	"	——	88-A-205	——	—	——	——
	51									
	52									
	53									
	54									
	55									
	56									
	57									
	58									
	59									
	60									
	61									

Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 89—TENDER TRUCK								
D	1	Truck 7"x14"	2	BUCKEYE STEEL CSTGS. CO. E-5189	ORD.	—	—	—	—	—
	2	" Arch Bar	—							
	3	" Truss Bar	—							
	4	" Tie Bar	—							
	5	" Columns	—							
	6	" "	—							
D	7	" Bolster CENTER	2	BUCKEYE ST. CSTGS. CO. E-5190 D	ORD.	—	—	—	—	—
D	8	" " ~~Guide~~ TRANSVERSE	4	B.S.C. CO. D-4996 B	ORD.	—	—	—	—	—
	9	" " Bar	—							
	10	" " Cap	—							
	11	" " Truss Rod	—							
	12	" " " " Washer	—							
D	13	" Center Plate SEE CTR. BOLSTER	—	—	—	—	—	—	—	—
	14	" King Bolt	2	892-J-98	—	892-J-98	—	—	—	—
	15	" " " Keys	—							
	16	" Spring Plank	—							
D	17	" " Seat ~~Top~~	4	BUCKEYE ST. CSTGS. CO. D.-4998-B.	ORD.	—	—	—	—	—
D	18	" " " ~~Bottom~~	4	"	ORD.	—	—	—	—	—
	19	" " Hanger	—							
	20	" " "	—							
	21	" " " Gib	—							
	22	" Side Bearing	—							
D	23	" " " Block	4	B.S.C. Co. E-5189	1"x4½"x10" STEEL	—	—	—	—	—
D	24	" Frame	4	BUCKEYE ST. CSTGS. CO. E-5191	ORD.	—	—	—	—	—
D	25	" " ~~Brace~~	4	"	ORD.	—	—	—	—	—
D	26	" " ~~Crosstie~~ JOURNAL BOX RETAINER	8	"	BOLTS FURNISHED BY BUCKEYE ST. CASTINGS CO.		—			—
	27	" Pedestal	—							
	28	" "	—							
	29	" " Cap	—							
	30	" " " Tie	—							
D	31	" Equalizer WITH JOURNAL BOX	4	BUCKEYE ST. CSTGS. CO. D-5172	ORD.	—	—	—	—	—
D	32	" " WEARING PLATES	8	"	ORD.	—	—	—	—	—
	33	" Swing Frame	—							
	34	" " Link	—							
	35	" " Pins	—							
D	36	" Check Chain	8	892-H-110	1⅛" CHAIN. ORD. 892-H-110		—	—	—	—
	37	" " " Bolt	—							
	38	" " " Clevis	—							
	39	" " " Pocket	—							
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Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 90—TENDER WATER SCOOP								
	1	Water Scoop	—							
	2	Scoop Cylinder	—							
	3	" " Head	—							
	4	" " "	—							
	5	" " Gland	—							
	6	" " Support	—							
	7	" " "	—							
	8	" Piston	—							
	9	" " Follower	—							
	10	" " Rings	—							
	11	" " Rod	—							
	12	" " " Jaws	—							
	13	" " " Extension Links	—							
	14	" Inside Pipe	—							
	15	" Outside Pipe	—							
	16	" Air Pipe Casing	—							
	17	" Neck	—							
	18	" Splash Hood	—							
	19	" Dipper	—							
	20	" " Link	—							
	21	" " Lifter	—							
	22	" " Nose	—							
	23	" " Shield	—							
	24	" " " Brackets	—							
	25	" Shaft	—							
	26	" " Fulcrum	—							
	27	" Bell Crank	—							
	28	" Arm	—							
	29	" Spring Cap	—							
	30	" " Rod	—							
	31	" " Seat	—							
	32	" " " Support	—							
	33	" Jaws	—							
	34	" Rods	—							
	35	" Lever	—							
	36	" Link	—							
	37	" Bracket	—							
	38	" Brace	—							
	39	" Pipe Hanger	—							
	40	" Joint Piece	—							
	41	" " " Trunion Cap	—							
	42	" " " " "	—							
	43	" " " Lifting Links	—							
	44	" " " " "	—							
	45	" Delivery Pipe Hanger	—							
	46	" " " " Clamp	—							
	47	" " " " Clips	—							
	48	"								
	49	"								
	50	" Operating Valve	—							
	51	" " " Cap	—							
	52	" " " Plug	—							
	53	" " " Nut	—							
	54	" " " Handle	—							
	55	" " " Quadrant	—							
	56	" " " Spring	—							
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Check	Item	TITLE	No. Pcs.	DRAWING Card No.	DRAWING Construct'n Notes	FORGINGS Sketch No.	CASTINGS—PATTERN NUMBERS Cast Iron	Cast Steel	Brass	Mal. Iron
		GROUP 95—WHEELS AND TIRES								
D	1	Truck Wheel 36"	12		EDGEWATER STEEL CO. FUR. BY R.R. CO.			PRINT # E.V. 1205	—	—
	2	Wheel Pressed on Axle (Tons)								
	3	Wheel Center								
	4	" Tire								
	5	Tire Retaining Ring								
	6	Wheel Numbers								
D	7	" MARKING		952-A-207	—	—	—	—	—	—
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	26	**GROUP 99—MISCELLANEOUS**								
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Check	Item	TITLE	No. Pcs.	DRAWING		FORGINGS	CASTINGS—PATTERN NUMBERS			
				Card No.	Construct'n Notes	Sketch No.	Cast Iron	Cast Steel	Brass	Mal. Ir

Material Specifications

4-20-37

SOUTHERN PACIFIC COMPANY

4-8-4 TYPE LOCOMOTIVES

C.O. 1135, C.O. 1141 & C.O. 2002

PATTERN NO.	DRAWING NO.	DATE	NAME
L.S.10450	882-A-144	8/24	Oil Tank Lifter Iron
L.B.10451	S.P.G.F.3813C	8/25	Tender Truck Journal Brass
L.S.10452			
L.B.10453	822-A-199	6/16/36	Tank Valve Flange
L.S.10454	862-A-117	9/28	Buffer Wedge Adj. Bolt Brkt.
10455	850-A-16	10/21	G.S.C.Cast Steel Tender Frame 51276
L.B.10456	544-B-37	10/22	Tender Owernship Plate
L.B.10457	542-A-684	4/9/37	Receptacle Box

Tender 1141-2&2

Table "A"

Material Furnished and Applied by Builder.

Item	Description	Maker	No. Req. per Tender.
1	Iron Conduit 1/2 Sherardized.		To suit
2	" " " 3/4" "		"
3	No. 14 AWG-NEC. Copper Wire - Single Tape, Rubber Compound Insulation. 5/64 Wall Thickness		"
4	No. 12. AWG-NEC. Copper Wire - Single Tape Rubber Compound Insulation. 3/64 Wall Thickness		"
5	No. 12. AWG-Tirex Wire. Two Conductor Rubber Clad		"
6	No. 18 AWG-Tirex Wire. Two Conductor Rubber Clad		"
7	Conduit Clamps for holding 1/2 Rigid Conduit to top of Water Tank at back.		1
8	1/2 x 1" Standard Stud & Hex Nut for securing conduit clamps.		1
9	SP-6135 1/2" Box Connector	Sprague Ele. Co	2
10	SP-6144 3/4" " "	"	1
11	SP-6194-A 3/4" " "	"	1
12	Flexible Steel Conduit 1/2" Greenfield Dbl. Strip.		To suit
13	" " " " 3/4" " " "		"
14	Close Nipples. 1/2" Sherardized		1
15	" " 3/4" "		1
16	Conduit Coupling. 1/2"		2
17	" " 3/4"		1
18	" Locknut 1/2"		1
19	Pipe Straps. Tinned. 1/2"		2
20	3/8" "J" Bolts with Hex. Nut and Locknut.		4
21	Lamp Bracket. 1/4" x 8" x 24"		1
22	1/2" x 2 1/2" Sq. Head Machine Bolt & Hex. Nut.		4
23	1/2" Hex. Grip Lock Nut. Style No. 1.		4
24	No. 14 x 3/8" - 20 Thread. R.H. Brass Mach. Screws.		4
25	No. 14 x 3/4" - 20 " " " " "		4
26			

Table "B"

Material Furnished by Railroad Co. and Applied by Builder.

Item	Description	Maker	No. Req. per Tender.
1	CRA-12 - 1/2" Receptacle	Pyle Natl. Co.	2
2	OCE-21 - 3/4" Outlet Fitting	"	1
3	STLE-224. 3/4" Terminal Box	"	1
4	STT - 2224 3/4" " "	"	1
5	CC-1. 1/2" Conduit Union	"	1
6	CCF-1. 1/2" " "	"	1
7	CC-2. 3/4" " "	"	1
8	EL-1190. 1/2" " Elbow	"	2
9	ELM-1190. 1/2" " "	"	1
10	ELM-2290. 3/4" " "	"	1
11	STBC-222. 3/4" " Fitting	"	1
12	BP.44. 5/8" 3 Pole Plug	"	1
13	RR-21 Bushing	"	3
14	SP-13. 3/8" 2 Pole Plug.	"	2
15	MLBR-15 Marker Lamps.	"	2
16	TSLC-118-T. Back Up Lamp.	"	1

Table "C"

Material Furnished by Railroad Co. and Applied at Destination.

Item	Description	No. Req. per Tender.
1	15 Watt x 34 Volt. Type S-14 Mazda. Clear Cab Lamps	2
2	150 Watt x 32 " " P-25 " . Headlight "	1

USED ON TENDERS CLASSES.
160-C-4
Used With Loco Class 4S-1.
220-R-1
Used With Loco. Class 4S-2

REVISION "A" Added Tender Class 220-R-1 Used with Loco. Class 4S-2.

Note:

For Clamps, Straps and "J" Bolts, see Drawing entitled "Wiring Accessories."
For Schematic Arrangement of Wiring, see Drawing entitled "Wiring Diagram."
For arrangement of Conduit, Fittings and Lighting Fixtures, see drawing entitled "Conduit and Fitting Arrangement."

SOUTHERN PACIFIC LINES

Special Drawing

ADOPTED:

Conduit and Fittings - Bill of Material.

Sept. 10. 1929 SCALE:

AL-15315 A

Reissued 3-23-36

January 21, 1937 File: 1135.

SOUTHERN PACIFIC 4-8-4 TYPE C.O.1135

Mr. George McCormick, G.S.M.P.
Southern Pacific Company
San Francisco, California

Dear Sir:

We have your telegram reading:

"Furnish air mail negative drawings for journal bearing wedge wheels coil springs and axles for GS-2 Class tenders order P-138."

Accordingly we are sending you herewith the following vandykes:

Tender Journal Brass	172-A-191
Tender Truck Spring	762-A-256
Tender Axle	112-A-194
Trailer Truck Box Wedge	172-B-133

We have no drawing of the tender truck wheel but we are sending you three photostats of Edgewater drawing U-1205, which we hope will serve your purpose.

Yours truly,

A. J. TOWNSEND

Mechanical Engineer

EFS:LS

CC-Mr.George
Mr.Scheib

Brake Control Wiring 1135

		X	STB-224	
1	Screw Cover Fitting	✓	STLR-224 ○	Pyle-Nat'l ✓
2	" " "	✓	STT-2224 ○	" ✓
2	" " "		STLR-22 ○	" ✓
2	Conduit Fitting	✓	ELM-22900	" ✓
2	Coupling		FCCM-22 ○	" ✓
8	Conduit Unions		CC-2 ○	" ✓
2	Bushing		RB-32 ○	" ✓
8'	Flex Conduit		HA-22 ○	" ✓
2	Coupling		FCCM-10 ○	" ✓
1	Receptacle		9402 ○	" ✓
2	3/4 Box Connector	X	SP-7130	Sprague ✓
2	3/4 " "	X	SP-6194A	" ✓
70'	3/4" Conduit Pipe			✓
160'	#12 Slow Burning Wire (Solid)			✓
220'	#12 Rubber Coated Wire (")	X		✓
1	30 amps fuse plug			✓
1	Fuse Box		PFC-22	Pyle ✓

Do Not Order

1 Signal lamp Bracket. Would application with 3/16" Plate welded to tank with 3/8" csk Hd. Bolts be acceptable? Spcd. BL12623 J. same as C&O. OK

2 Hand Brake angt DL-13905 E & BL14651, On account of Coal board being of different type will it be satisfactory to apply Bracket to angle holding oil tank see SL 16757 proved OK

3 See #18 ~~Spec calls for 2-5" gate valves. Wells will be provided on frames Similar to Drg BL 15179. Possibly forward of frontbox shown on this Drg.~~

4 Oil piping angt # DL-15183A shows a 2" oil fuel line. Oil Conduit Pipe Ell now # AL 15151 specified shows 2½" line from Tank valve to reinforced 2" Flexible joint Conn OK 2

5 Oil Tank Crane Hook. If this is used will it be satisfactory to make of cast. Plate Drg SL 16757 does not indicate that this can be used the question will be answered

6 Tool Box AL. 10496 G Get RK con idea relative frame fastening. May be desirable to have box open from the side instead of top. Supports shown on AL-13934 not suitable for Rec. tank. work and design OK

7 Journal Box Cover carrier Dropped

8 Back Up Lamp Brkt. Will it be satisfactory to apply with studs omitting brkt. Same as 1134

OK

9 Tender Deck CL-15186. Will follow this except with necessary modifications for Rec. tank, OK.

10. Tank Cock Pt AL 11395 On account of Clearance will it be satisfactory to place in front head of tank under tender deck? Plans to be checked

11 Deck Ladder & Rear Steps to be same as shown on AL 13908-B AL 13907 & Inside ladder # AL 13906 modified to suit frame conditions if necessary modification governed by above

OK-

12 on front of deck Sand Box Pt. BL-15167 get R R Co's preferred location with tank construction as shown on Pt. SL-16757 also preferred location of Marker Lamp Box CL-13904-C.

13 Electrical Equipment Bill AL 15315 A To be followed except modified for Rec. tank. Conduit attached to collars inside.

OK

14 Tank Handle across rear of tank AL-13929 arch of OK as marked in Yellow Similar AL. 13413

OK

15 S.P. prints CL 15195 A & 15194 A. Get R R Co's idea as to the correct method of piping drain for closed heater shown on print CL 15195 A

OK

16 Hose, Flag & Torpedo Box. Get location on tender preferred by R R Co (see SL 16757)

Owing

17 Tool Racks & Torch Holders get location on tender desired. Pt 20338 (See front face of Oil tank)

18 Gate Valve application Pt BL 15179. Aircraft on 1135 will be similar to this, except and shown on above print would not permit removal of application of Valve, duct interference with Brayton pocket. We have always used a flanged valve on applications of this type. This to be worked Out

LIMA LOCOMOTIVE WORKS, INCORPORATED

ENGINEERING DEPARTMENT
MATERIAL

FORM ED-244 5M 2-26 FTP

Date 10-17-36

C. O. 1135

Material Department:—Please Order the Following Material:

No. Pcs.. Per Eng.	DESCRIPTION	Material	SIZES	REMARKS
1	Tool Box Plate		1/4" x 27" x 122 1/2	
1	" " "		1/4" x 48 1/2" x 78"	
2	" " "		1/4" x 16" x 16 1/2"	
1	" " "		1/4" x 13" x 78 1/2	
1	" Angle	2 1/2 x 2 1/2 x 3/8	78" long	
2	" "	2" x 2 x 1/4"	16" long	
12	Journal Box Zd Keeper Stamp		to Cl 172A188	

Made By CRA

Checked By

Entered in Material Book by EMW 10/19

Received by Material Dept.

Signed

July 21, 1936

File: 1135.11

SOUTHERN PACIFIC 4-8-4 TYPE, C.O. 1135
TENDER AXLES

Mr. G. McCormick, Genl. Supt. M. P.
Southern Pacific Company
San Francisco, Calif.

Dear Sir:

Mr. Betterton has suggested that we submit for approval Drawing of 7" x 14" Tender Axle which we would propose for the new order, inasmuch as you do not have a drawing available of this size axle.

We are accordingly sending you duplicate prints of Tender Axle Drawing 112-A-194 and we should like to have you advise us as quickly as possible if this drawing meets with your approval.

Yours truly,

(Signed) H. W. SNYDER

WORKS MANAGER

EFS:LM
cc - Mr. George
Mr. Scheib

J. E. Dixon July 13, 1936

SOUTHERN PACIFIC ORDER 1135

In my letter to Mr. Snyder of June 29th, copy of whidh you received, I advised him that we had named alternates on painting, piston valve packing rings, bull rings and bushings, cocks and valves, rigid water space staybolts and tender truck axles. Exhibit B definitely settles the items of Pyroxylin and piston valve bull rings, packing rings, AND BUSHINGS and we will proceed on the basis of Pyroxylin for outside of cab and tank and Hunt Spiller iron for the piston valve details referred to.

Will you please advise as soon as possible relative to alternates named you for superheated cocks and valves, rigid water space staybolts and tender truck axles.

(SIGNED) P. M. PERCE

PMP:GS

Copy to Mr. Woodard
Mr. Snyder- 2
Mr. Scheib

1135

Table "A"

Item	Material Furnished and Applied by Builder. Description	Maker	No. Req. per Tender.
1	Iron Conduit 1/2 Sherardized.		To Suit
2	" " 3/4" "		"
3	No. 14 AWG-NEC. Copper Wire - Single Tape, Rubber Compound Insulation. 3/64 Wall Thickness		"
4	No. 12. AWG-NEC. Copper Wire - Single Tape Rubber Compound Insulation. 3/64 Wall Thickness		"
5	No. 12. AWG-Tirex Wire. Two Conductor Rubber Clad		"
6	No. 18 AWG-Tirex Wire. Two Conductor Rubber Clad		"
7	Conduit Clamps, for holding 1/2" Rigid Conduit to top of Water Tank at back.		1
8	1/2 x 1" Standard Stud & Hex Nut for securing conduit clamps.		1
9	SP-6135 1/2" Box Connector	Sprague Ele. Co	2
10	SP-6144 3/4" " "	"	1
11	SP-6194-A 3/4" " "	"	1
12	Flexible Steel Conduit 1/2" Greenfield Dbl. Strip.		To Suit
13	" " " 3/4" " " "		"
14	Close Nipples. 1/2" Sherardized		1
15	" " 3/4" "		1
16	Conduit Coupling. 1/2"		2
17	" " 3/4"		1
18	" Locknut 1/2"		1
19	Pipe Straps. Tinned. 1/2"		2
20	3/8" "J" Bolts. with Hex. Nut, and Locknut.		4
21	Lamp Bracket. 1/4" x 8" x 24"		1
22	1/2" x 2 1/2 Sq. Head Machine Bolt & Hex. Nut.		4
23	1/2" Hex. Grip Lock Nut. Style No. 1.		4
24	No. 14 x 3/8" - 20 Thread. R.H. Brass Mach. Screws.		4
25	No. 14 x 3/4" - 20 " " " " "		4
26			

Table "B"

Item	Material Furnished by Railroad Co. and Applied by Builder. Description	Maker	No. Req. Per Tender.
1	CRA-12 - 1/2" Receptacle	Pyle Natl. Co.	2
2	OCE-21 - 3/4" Outlet Fitting	"	1
3	STLE-224. 3/4" Terminal Box	"	1
4	STT-2224 3/4 " "	"	1
5	CC-1. 1/2" Conduit Union	"	1
6	CCF-1. 1/2" " "	"	1
7	CC-2. 3/4" " "	"	1
8	EL-1190. 1/2" " Elbow	"	2
9	ELM-1190. 1/2" " "	"	1
10	ELM-2290. 3/4" " "	"	1
11	STBC-222. 3/4" " Fitting	"	1
12	BP. 44. 5/8" 3 Pole Plug	"	1
13	RB-21 Bushing	"	3
14	SP-13. 3/8" 2 Pole Plug.	"	2
15	MLBR-15 Marker Lamps.	"	2
16	TSLC-118-T. Back Up Lamp.	"	1

Table "C"

Item	Material Furnished by Railroad Co. and Applied at Destination. Description	No. Req. Per Tender.
1	15 Watt x 34 Volt. Type S-14 Mazda. Clear Cab Lamps	2
2	150 Watt x 32 " " P-25 " . Headlight "	1

USED ON TENDERS
CLASSES.
160-C-4
Used With Loco
Class GS-1.
220-R-1
Used With Loco.
Class GS-2

REVISION "A" Added Tender Class 220-R-1 Used with Loco. Class GS-2.

Note:

For Clamps, Straps, and "J" Bolts, see Drawing entitled, "Wiring Accessories."
For Schematic Arrangement of Wiring, see Drawing entitled, "Wiring Diagram."
For arrangement of Conduit, Fittings, and Lighting Fixtures, see drawing entitled "Conduit and Fitting Arrangement."

SOUTHERN PACIFIC LINES

Special Drawing.

ADOPTED:

Conduit and Fittings - Bill of Material.

Sept. 10. 1929 SCALE:

AL-15315A

"Reissued" - 3-23-36

4-20-37

SOUTHERN PACIFIC COMPANY

4-8-4 TYPE LOCOMOTIVES

C.O. 1135, C.O. 1141 & C.O. 2002

PATTERN NO.	DRAWING NO.	DATE	NAME
L.S.10450	882-A-144	8/24	Oil Tank Lifter Iron
L.B.10451	S.P.G.F.3813C	8/25	Tender Truck Journal Brass
L.S.10452			
L.B.10453	822-A-199	6/16/36	Tank Valve Flange
L.S.10454	862-A-117	9/28	Buffer Wedge Adj. Bolt Brkt.
10455	850-A-16	10/21	G.S.C.Cast Steel Tender Frame 51276
L.B.10456	544-B-37	10/22	Tender Owernship Plate
L.B.10457	542-A-684	4/9/37	Receptacle Box.

MATERIAL REQUIRED FOR 22 000 GALLON TANK

NO. PCS.	DESCRIPTION	THICK	WIDE	LONG	WEIGHT	MATERIAL
2	OUTSIDE SIDES	5/16"	109"	179"	4050	TANK STEEL
2	" "	5/16"	110"	263"	5950	" "
1	" REAR	5/16"	110"	185"	2100	" "
1	" FRONT	5/16"	109"	173"	1940	" "
1	TOP	5/16"	115"	298"	3520	" "
1	REAR SLOPE & BOTTOM	5/16"	120"	233"	2880	" "
1	" " SUPPORT - TOP	5/16"	28 1/2"	120"	330	" "
4	FILLING HOLE PLATES	3/16"	12 1/2"	91"	270	" "
4	" " LIDS	3/16"	26 1/2"	27 1/2"	170	" "
1	BRACE PLATE - MAKES 2	5/16"	30"	36"	100	" "
2	" " -	5/16"	51"	63 1/2"	620	" "
2	" "	5/16"	31"	56 1/2"	335	" "
4	DASH PLATES	5/16"	24"	31"	285	" "
1	" "	5/16"	31"	66 1/2"	195	" "
1	" "	5/16"	32"	66 1/2"	200	" "
2	" "	5/16"	24"	46"	210	" "
1	" "	5/16"	63 1/2"	66 1/2"	375	" "
1	" "	5/16"	66 1/2"	79 1/2"	510	" "
8	" "	5/16"	24"	96"	1750	" "
2	" "	5/16"	83 1/2"	96"	1640	" "
1	" "	5/16"	74 1/2"	96"	675	" "
1	" "	5/16"	60 1/2"	96"	550	" "
2	" "	5/16"	29 1/2"	96"	540	" "
2	" "	5/16"	46"	130"	1150	" "
4	" "	5/16"	46"	60 1/2"	1050	" "
2	" "	5/16"	46"	70 1/2"	620	" "
1	" "	5/16"	46"	68"	260	" "
1	GUSSET " - MAKES 2	5/16"	24"	24"	35	" "

20	TEE IRON	4" x 3" x 3/8"	95"	LONG CAR. SEC. T-61
3	" "	4" x 3" x 3/8"	91"	" "
9	" "	4" x 3" x 3/8"	113"	" "
6	" "	4" x 3" x 3/8"	115"	" "
2	" "	4" x 3" x 3/8"	78 1/2"	" "
2	" "	4" x 3" x 3/8"	62 1/2"	" "
2	" "	4" x 3" x 3/8"	45 1/2"	" "
2	" "	4" x 3" x 3/8"	30 1/2"	" "
6	" "	4" x 3" x 3/8"	28"	" "
5	" "	4" x 3" x 3/8"	25 1/2"	" "

6 FT. 4" x 4" x 5/8" ANGLE IRON
8 FT. 4" x 6" x 5/8" " "
160 FT. 3" x 3" x 3/8" " "
300 FT. 2 1/2" x 2 1/2" x 3/8" " "
100 FT. 1 1/4" x 1 1/4" x 1/4" " "
120 FT. 7/16" x 1 1/2" HALF OVAL BEADING IRON

DRAWN C.R.A. TRACED C.P.D. CHECKED - F.W.G APPROVED F. W. George Jr.

6275 GALLON OIL TANK — MATERIAL

ITEM	PCS.	DESCRIPTION	THICK	WIDE	LONG	MATERIAL	APPROX. WEIGHT
1	1	TOP	1/4"	125"	220"	COLD PRESSING QUALITY	2280
2	1	BOTTOM	1/4"	123"	237"	" " "	2340
3	2	SIDES	1/4"	73"	142 1/2"	TANK STEEL	1620
4	1	FRONT	1/4"	73"	168"	" "	960
5	1	BACK	1/4"	31 1/2"	182"	" "	450
6	1	TANK FUNNEL	1/4"	7 1/2"	52"	" "	125
7	1	" " LID	3/8"	19" DIA.		" "	30
8	2	DASH PLATES	1/4"	36"	37"	" "	210
9	1	" "	1/4"	32"	58 1/2"	" "	145
10	2	" "	1/4"	36"	78"	" "	440
11	1	" "	1/4"	32"	78"	" "	195
12	2	" "	1/4"	30"	78"	" "	360
13	1	GUSSET PLATE (TO CUT)	3/8"	8 1/2"	45"	" "	45
14	2	" " (" ")	3/8"	8 1/2"	100"	" "	125
15							
16							
17							
18							
19							
20							
21							
22	5	TEES 4" X 3" X 3/8" 107" LONG	CAR. SEC T-61				
23	5	" 4" X 3" X 3/8" 111" "	"			"	
24	6	" 4" X 3" X 3/8" 72" "	"			"	
25	2	" 4" X 3" X 3/8" 53" "	"			"	
26	2	" 4" X 3" X 3/8" 31" "	"			"	
27	2	" 4" X 3" X 3/8" 54" "	"			"	
28							
29							
30		6-FT. 4" X 6" X 5/8" ANGLE IRON					
31		150-FT. 2 1/2" X 2 1/2" X 3/8" " "					
32		8-FT. 6" X 6" X 5/8" " "					
33		36-FT 2" X 2" X 1/4" " "					
34							
35							
36							

PREPARED G. J. - C.P.D. | CHECKED CRA | APPROVED | MATERIAL ORDER 88-MO-129

LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO — DATED 8-11-1936

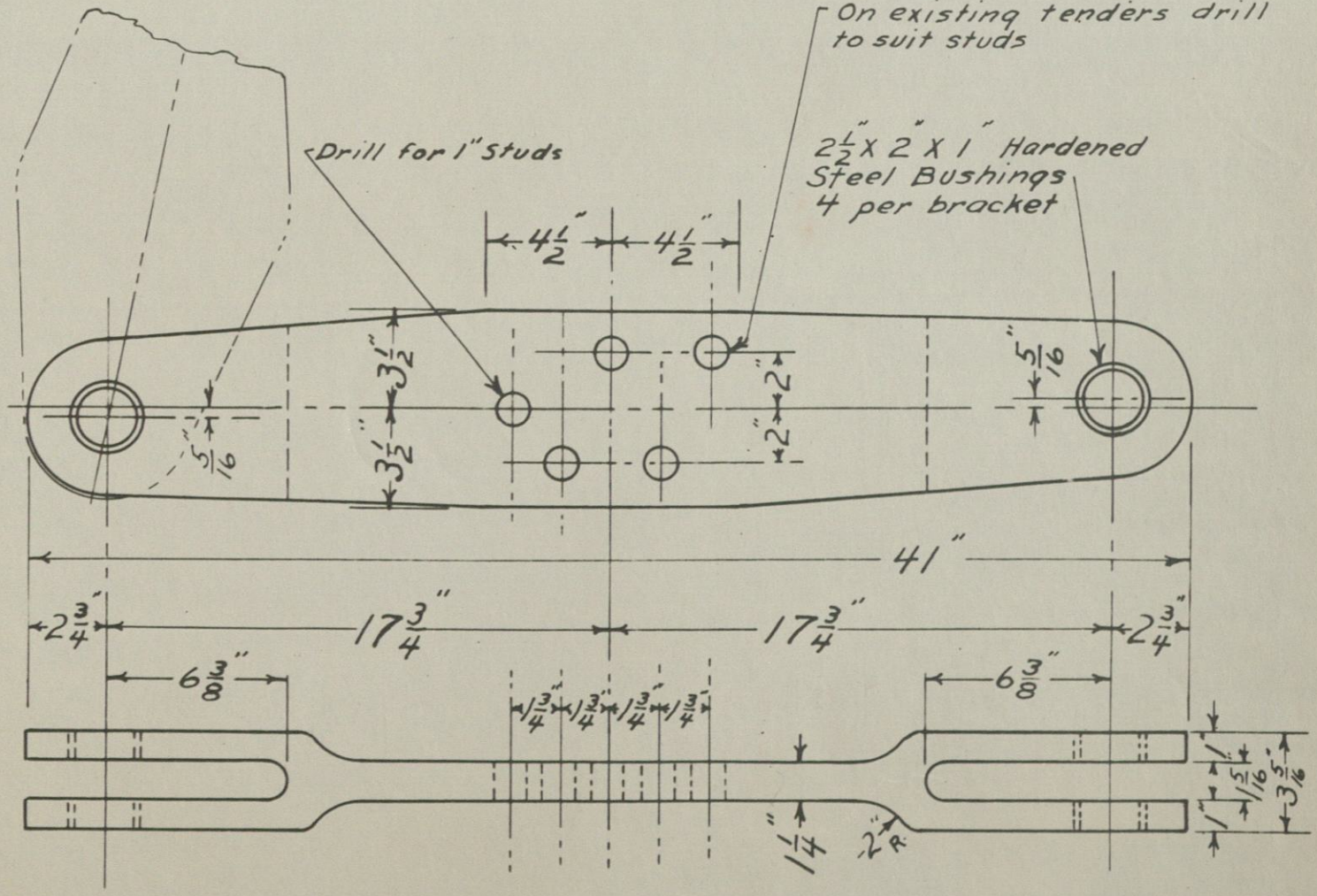
IMPERIAL TRACING CLOTH

~~Hook~~ U.P.

We are following Tank print # 88-11-126 furnished by RR for order 1143. There will be no change in this print except the addition of holes in the dash plate

U.P. Tender frame # 85-10-51 will be followed except slight change in radial buffer, none of which will not effect the stoker application

Used on tenders
Classes 220-R-1,2



Material: Wrot Steel
AAR Spec M-102, Grade B, latest revision.
1 per tender

Brake Rigging
Fulcrum Bracket

Office of Gen'l Supt. Motive Power Dec. 2, 1937

S-3606